

Remarks

This Amendment responds to the Office action dated September 15, 2005. Applicants' attorney acknowledges with appreciation the interview granted by the Examiner on December 19, 2005. During that interview, Applicants' attorney discussed Claims 1, 3, 11 and 12, proposed the amendments to those claims made herein and as to those claims, made the arguments set forth below.

As indicated in the Office action dated September 15, 2005, Claims 1-51 are pending in the present application and currently stand rejected. Claims 1, 11, 13, 14, 19, 21, 22, 26-29, 35-38 and 45 are amended, and Claims 12 and 20 are cancelled by this Amendment, leaving Claims 2-10, 15-18, 23-25, 30-34, 39-44 and 46-51 unchanged. No new matter has been added by this Amendment. Applicants respectfully request reconsideration of the rejections and submit Claims 1-11, 13-19 and 21-51 for further consideration.

Claim Rejections – 35 U.S.C. § 102

With respect to the present Office action, Claims 11, 19 and 27-28 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,329,788 ("Bailey"). To anticipate a claim under Section 102, the reference must teach every element of the claim as set forth in the claim, either expressly or inherently. See M.P.E.P. § 2131. With respect to the amendments, Bailey and the remaining cited references fail to meet these requirements, and Applicants respectfully request reconsideration of these rejections.

With respect to Claim 11, Claim 11 as now amended recites a battery pack for powering a hand held power tool, the battery including a housing and a plurality of battery cells supported by the housing, the battery cells having a combined nominal voltage of approximately 28-volts and having a lithium-based chemistry. Bailey discloses a power tool battery pack but does not teach nor suggest a battery pack having battery cells of a lithium-based chemistry. Accordingly, Bailey does not teach or suggest a battery pack as recited in amended Claim 11. Therefore, the rejection of the claim as amended should now be withdrawn.

With respect to Claim 19, Claim 19 as now amended recites an electrical combination including a hand held power tool and a battery pack including a housing and a plurality of

battery cells supported by the housing, the battery cells having a combined nominal voltage of approximately 28-volts and having a lithium-based chemistry. Bailey discloses a power tool battery pack but fails to disclose or suggest a battery pack having battery cells of a lithium-based chemistry. Accordingly, Bailey does not teach an electrical combination as recited in Claim 19 as now amended. Therefore, the rejection of the claim, as well as the rejection of Claims 27-28 which depend ultimately from amended Claim 19, should now be withdrawn.

Claim Rejections – 35 U.S.C. § 103

With respect to the present Office action, Claims 1-10, 12-18, 20-26 and 29-51 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bailey in view of at least one of U.S. Patent No. 6,451,362 (“Choo”), U.S. Patent No. 6,275,004 (“Tamai”), U.S. Patent No. 6,509,114 (“Nakai”) and U.S. Patent No. 4,893,067 (“Bhagwat”). To establish a *prima facie* case of obviousness under Section 103, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143. The Office’s rejections do not meet the above criteria, and, therefore, Applicants respectfully request reconsideration of these rejections.

With respect to the rejections based on Bailey in view of Choo, there is no suggestion or motivation to combine the teachings of Choo with the teachings of Bailey. Bailey discloses a 24-volt nickel-cadmium battery pack for powering power tools. As shown in Figs. 1A, 13 and 15 of Bailey, the power tool is a single device connected to and receiving power from a single battery pack. Choo discloses a battery-powered electronic device operable to connect to and to receive power from two batteries; a main battery and a second battery. Further, there is no mention in Choo that the disclosed device is or could be a power tool. Accordingly, there is no suggestion or motivation to combine the teachings of these two references.

Also, even if one were to combine the teachings of Choo with the teachings of Bailey, there is no teaching that the resulting combination would produce a workable resulting structure nor a resulting structure operable for its intended purpose. If a proposed modification renders the

prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. See M.P.E.P. § 2143.01.

According to Choo, when both the main battery and the second battery are simultaneously mounted in the device, the device receives power from the battery having a relatively higher voltage level in advance of receiving power from the other battery. See Choo, Abstract, Fig. 1 and col. 5, lines 29-35. That is, the device of Choo selectively receives power from only one battery when there is a difference in voltage levels between the main battery and the second battery.

As is known in the art, the battery pack of Bailey includes a plurality of nickel-cadmium battery cells that are collectively combined to produce a 24-volt battery intended to power a 24-volt power tool. As modified by Choo, the power tool of Bailey, when detecting one or more battery cells having a higher voltage level than the remaining battery cells, would have to selectively receive power from the one or more battery cells having the higher voltage and not the remaining battery cells to balance the voltage levels. The combination results in a 24-volt battery pack attempting to provide less than the power required to operate the 24-volt power tool. To provide less than 24-volts to a power tool that requires 24-volts to operate is not the intended purpose of Bailey's battery pack. Accordingly, there is no suggestion or motivation to combine Bailey with Choo.

Because there is no suggestion to combine the teachings of Bailey with the teaching of Choo, there is no prima facie case of obviousness. Accordingly, the rejections based on Bailey in view of Choo should be rescinded, and Claims 1-10 should be allowed.

With respect to the rejections based on Bailey in view of Nakai, there is also no suggestion or motivation to combine the teachings of Bailey with the teachings of Nakai. Again, Bailey teaches a 24-volt battery pack to power various power tools, as shown in Figs. 1A, 13 and 15. Nakai discloses a cylindrical lithium-ion battery that is specifically suitable for the power supply source for an electric vehicle. See Nakai, col. 12, lines 31-36. Nakai does not teach or suggest a lithium-ion battery to power a hand held power tool as now claimed. In fact, Nakai teaches away from using its lithium-ion battery with a hand held power tool.

First, the batteries of Nakai are intended for high capacity and high power applications in which weight and size of the battery are not issues, such as electric vehicles. Of the battery examples cited in Table 1, all but one battery has a length of over a foot long. Hand held power tools, such as the tools taught by Bailey, are portable and have limits as to what is acceptable for battery pack size and weight. Accordingly, even just one battery of Nakai could not physically fit into the battery pack of the hand held power tool of Bailey, let alone six batteries of Nakai necessary to produce the 24-volt battery required by Bailey to power the 24-volt hand held power tools. Accordingly, the resulting combination of Bailey and Nakai would not produce any success at all, much less a reasonable expectation of success.

Second, Nakai further teaches away from providing a battery for high capacity and high power applications that is also compact in size and weight and suitable for use with a hand held power tool. In the Background of the Invention section of Nakai, Nakai distinguishes between lithium-ion batteries having a capacity of roughly 2 ampere-hours (2 Ah) or less and lithium-ion batteries having a capacity of roughly 3 Ah or more. Batteries with 2 Ah capacity are referred to as low capacity batteries and batteries with 3 Ah or more are referred to as high capacity batteries. See Nakai, col. 1, line 52 through col. 2, line 9. According to Nakai, examples of these low capacity batteries typically include notebook-type personal computers and portable telephones, which are also examples of portable devices which have limits for acceptable size and weight.

As stated in the Background section of Nakai, in order to improve energy density of lithium-ion batteries, it is preferable to fill up more active material in the battery container, and for this reason, the electrode winding group is inserted into the battery container in a relatively dense manner. However, this creates safety issues as various lithium chemistries become prone to volume expansion and even explosion under adverse conditions. See Nakai, col. 1, lines 40-50. For low capacity batteries (e.g., batteries with 2 Ah or less capacity), a slight space is formed between the electrode winding group and the battery container within a range in which remarkable capacity reduction and energy density lowering can be suppressed. See Nakai, col. 1, lines 52-59. In other words, a small space, void of any active material, should be added to the battery according to Nakai to improve safety yet without negatively affecting the energy density of the battery to a large degree.

For high capacity batteries (e.g., batteries with 3 Ah or more capacity), Nakai states that power becomes necessarily high and that safety becomes a larger concern. For these high capacity batteries with high power demands, the length and diameter of the batteries must be increased. See Nakai, col. 2, lines 3-5. Ultimately, the number of windings as well as the diameter of the winding group increases and causes more safety concerns. See Nakai, col. 2, lines 15-24. It is Nakai's conclusion that, for securing safety in cylindrical lithium-ion batteries with high capacity (e.g., greater than 3 Ah) and high power, it is necessary to define a space between an electrode winding group and a battery container. See Nakai, col. 2, lines 26-31. This space needs to be defined for the purpose of securing safety, which is different from the space defined in lithium-ion batteries with relatively small capacity. See Nakai, col. 2, lines 31-35.

The teachings of Nakai suggest that a high capacity battery (e.g., a battery with a capacity of 3 Ah or greater) used to power a device with high power requirements (e.g., an electric vehicle or, as suggested by the Examiner, a power tool) must include a gap between the container of the battery and the battery windings. Nakai teaches building a battery with a largely increased space void of any material. Therefore, according to Nakai, in order to make a high capacity battery having a certain capacity, the size of the container must be increased to accommodate for the void of material (e.g., increase the overall size of the battery). In order to make a high capacity battery having a certain size, such as, for example, a size capable of fitting within a power tool battery pack, the size of the windings must be decreased to accommodate for the void of material (e.g., decrease the number of windings and length of the electrodes), thus decreasing the amount of active material and the capacity of the battery.

Accordingly, if the batteries of Nakai were modified such that they could fit within the battery pack of Bailey, the batteries would have a reduced amount of active material and would not be able to produce the required power for operating a power tool. In other words, the Nakai batteries would no longer have high capacity or high power outputs. Again, the resulting combination would not produce any success at all, much less a reasonable expectation for success.

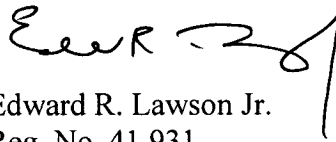
Because there is no suggestion to combine the teachings of Bailey with the teachings of Nakai, there is no prima facie case of obviousness. Accordingly, the rejections based on Bailey

in view of Nakai should be rescinded, and Claims 12-17, 20-25, 29-51 and, as amended, Claims 11 and 19 should be allowed.

CONCLUSION

In light of the amendments and remarks above, Applicants respectfully request entry of this Amendment and the allowance of Claims 1-11, 13-19 and 21-51. The undersigned is available for telephone conference at any time.

Respectfully submitted,



Edward R. Lawson Jr.
Reg. No. 41,931

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Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Suite 3300
Milwaukee, Wisconsin 53202-4108
414.271.6560